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SEQUENCE LISTING

<110> Horvitz, H. Robert
Ceol, Craig
Anderson, Eric

<120> RB PATHWAY AND CHROMATIN REMODELING
GENES THAT ANTAGONIZE LET-60 RAS SIGNALING

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Pro Lys Arg Arg Ile Arg Arg Leu Ser Ile Asp Ser Val Glu Glu Leu
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Glu Phe Leu Ala Ser Glu Pro Ser Thr Ser Glu Asp Ala Asp Glu Ser
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Gly Gly Asp Pro Asn Lys Leu Pro Pro Pro Thr Lys Glu Gly Lys Lys
545                 550                 555                 560
Thr Ser Pro Glu Ala Ile Leu Thr Ala Met Ser Thr Met Thr Pro Pro
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Pro Leu Ala Ile Val Glu Ala Arg Asn Leu Val Lys Tyr Ile Met His
            580                 585                 590
Thr Cys Lys Phe Val Thr Gly Gln Leu Arg Ile Ala Arg Pro Ser Gln
        595                 600                 605
Asp Met Tyr His Cys Ser Lys Glu Arg Asp Leu Phe Glu Arg Leu Leu
    610                 615                 620
Arg Tyr Gly Val Met Cys Met Asp Val Phe Val Leu Pro Thr Thr Arg
625                 630                 635                 640
Asn Gln Pro Gln Met His Ser Ser Met Arg Thr Lys Asp Glu Lys Asp
                645                 650                 655
Ala Leu Glu Ser Leu Ala Asn Val Phe Thr Thr Ile Asp His Ala Ile
            660                 665                 670
Phe Arg Glu Ile Phe Glu Lys Tyr Met Asp Phe Leu Ile Glu Arg Ile
        675                 680                 685
Tyr Asn Arg Asn Tyr Pro Leu Gln Leu Met Val Asn Thr Phe Leu Val
    690                 695                 700
Arg Asn Glu Val Pro Phe Phe Ala Ser Thr Met Leu Ser Phe Leu Met
705                 710                 715                 720
Ser Arg Met Lys Leu Leu Glu Val Ser Asn Asp Lys Thr Met Leu Tyr
                725                 730                 735
Val Lys Leu Phe Lys Ile Ile Phe Ser Ala Ile Gly Ala Asn Gly Ser
            740                 745                 750
Gly Leu His Gly Asp Lys Met Leu Thr Ser Tyr Leu Pro Glu Ile Leu
        755                 760                 765
Lys Gln Ser Thr Val Leu Ala Leu Thr Ala Arg Glu Pro Leu Asn Tyr
    770                 775                 780
Phe Leu Leu Leu Arg Ala Leu Phe Arg Ser Ile Gly Gly Gly Ala Gln
785                 790                 795                 800
Asp Ile Leu Tyr Gly Lys Phe Leu Gln Leu Leu Pro Asn Leu Leu Gln
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Phe Leu Asn Lys Leu Thr Asn Leu Gln Ser Cys Gln His Arg Ile Gln
            820                 825                 830
Met Arg Glu Leu Phe Val Glu Leu Cys Leu Thr Val Pro Val Arg Leu
        835                 840                 845
Ser Ser Leu Leu Pro Tyr Leu Pro Leu Leu Met Asp Pro Leu Val Cys
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Ala Met Asn Gly Ser Pro Asn Ile Val Thr Gln Gly Leu Arg Thr Leu
865                 870                 875                 880
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                885                 890                 895
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Lys Ala Pro Asp Thr Ser Ser Met Thr Ala Ala Phe Arg Ile Leu Gly
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Lys Phe Gly Gly Ala Asn Arg Lys Leu Leu Asn Gln Pro Gln Ile Leu
    930                 935                 940
Gln Val Ala Thr Leu Gly Asp Thr Val Gln Ser Tyr Ile Asn Met Glu
945                 950                 955                 960
Phe Ser Arg Met Gly Leu Asp Gly Asn His Ser Ile His Leu Pro Leu
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Lys Trp Cys Met Glu Leu Ser Lys Ala Val Leu Leu Ala Gly Leu Gly
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                1045                1050                1055
Tyr Thr Cys Pro Arg Glu Ser Asp Arg Glu Leu Phe Val Asn Ala Leu
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Leu Ala Met Ala Tyr Gly Ile Trp Asn Lys Asp Gly Phe Arg His Val
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Tyr Ser Lys Phe Phe Ile Lys Val Leu Arg Gln Phe Ala Leu Ile Gly
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Val Leu Glu Tyr Ile Gly Gly Asn Gly Trp Met Arg His Ala Glu Glu
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Glu Gly Val Leu Pro Leu Cys Leu Asp Ser Ser Val Met Val Asp Ala
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Leu Ile Ile Cys Leu Ser Glu Thr Ser Ser Ser Phe Ile Ile Ala Gly
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Val Met Ser Leu Arg His Ile Asn Glu Thr Leu Ser Leu Thr Leu Pro
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Asp Ile Asp Gln Met Ser Lys Val Pro Met Cys Lys Tyr Leu Met Glu
    1170                1175                1180
Lys Val Phe Lys Leu Cys His Gly Pro Ala Trp Tyr Ala Arg Ser Gly
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Gly Ile Asn Ala Ile Gly Tyr Met Ile Glu Ser Phe Pro Arg Lys Phe
                1205                1210                1215
Val Met Asp Phe Val Ile Asp Val Val Asp Ser Ile Met Glu Val Ile
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Leu Gly Thr Val Glu Glu Ile Ser Ser Gly Ser Ala Asp Ser Ala Tyr
        1235                1240                1245
Asp Cys Leu Lys Lys Met Met Arg Val Tyr Phe Ile Lys Glu Glu Gly
    1250                1255                1260
Gln Glu Glu Glu Asn Leu Thr Leu Ala Thr Ile Phe Val Ser Ala Ile
1265                1270                1275                1280
Ser Lys His Tyr Phe His Ser Asn Glu Arg Val Arg Glu Phe Ala Ile
                1285                1290                1295
Gly Leu Met Asp His Cys Met Val His Ser Arg Leu Ala Pro Ser Leu
            1300                1305                1310
Asp Lys Phe Tyr Tyr Arg Phe Lys Glu Phe Phe Glu Pro Glu Leu Met
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Arg Val Leu Thr Thr Val Pro Thr Met Ser Leu Ala Asp Ala Gly Gly
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Ser Leu Asp Gly Val Gln Asn Tyr Met Phe Asn Cys Pro Asp Gly Phe
1345                1350                1355                1360
Asp Phe Glu Lys Asp Met Asp Met Tyr Lys Arg Tyr Leu Ser His Leu
                1365                1370                1375
Leu Asp Ile Ala Gln Thr Asp Thr Phe Thr Leu Asn Gln Arg Asn Ala
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Phe Lys Lys Cys Glu Thr Cys Pro Ser His Phe Leu Pro Pro Phe Pro
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Ile Thr Thr His Ile Asp Ser Met Arg Ala Ser Ala Leu Gln Cys Leu
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Val Ile Ala Tyr Asp Arg Met Lys Lys Gln Tyr Ile Asp Lys Gly Ile
1425                1430                1435                1440
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Ser Thr Ile Ile Ile Ala Thr Phe Gly Ala Ser Tyr Ile Arg Asn Ile
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Val Thr Lys Met Ala Val Asn Leu Ala Asn Gln Met Val Lys Tyr Lys
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Met Ser Asp Lys Ile Ser Arg Ile Leu Ser Val Pro Ser Ser Phe Thr
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Glu Glu Glu Leu Asp Asp Phe Glu Ala Glu Lys Met Lys Gly Ile Arg
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Glu Leu Asp Met Ile Gly His Thr Val Lys Met Leu Ala Gly Cys Pro
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Val Thr Thr Phe Thr Glu Gln Ile Ile Val Asp Ile Ser Arg Phe Ala
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Ala His Phe Glu Tyr Ala Tyr Ser Gln Asp Val Leu Val Asn Trp Ile
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Phe Phe Leu Ser Arg Glu Ser Ile Leu Asp Pro Ala Arg Arg Ser Phe
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Ile Arg Arg Ile Ile Val Tyr Gln Ser Ser Gly Pro Leu Arg Gln Glu
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Phe Met Asp Thr Pro Glu Tyr Phe Glu Lys Leu Ile Asp Leu Asp Asp
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Glu Glu Asn Lys Asp Glu Asp Glu Arg Lys Ile Trp Asp Arg Asp Met
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Phe Ala Phe Ser Ile Val Asp Arg Ile Ser Lys Ser Cys Pro Glu Trp
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Lys Lys Phe Gln Glu Glu Ile Ile Val Lys Arg Met Thr Glu His Lys
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Tyr Lys Val Pro Lys Leu Ile Leu Asn Thr Phe Leu Arg Tyr Leu Arg
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Leu Asn Ile Tyr Asp Tyr Asp Leu Phe Ile Val Ile Ala Ser Cys Phe
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Thr Glu Val Ile Pro Lys Val Pro Leu Gln Trp Arg Arg Glu Leu Phe
1845 1850 1855
Leu Arg Ile Met Gln Lys Phe Asp Thr Asp Pro Gln Thr Ala Gly Thr
1860 1865 1870
Ser Met Gln His Val Lys Ala Leu Gln Tyr Leu Val Ile Pro Thr Leu
1875 1880 1885
His Trp Ala Phe Glu Arg Tyr Asp Thr Asp Glu Ile Val Gly Thr Ala
1890 1895 1900
Pro Ile Asp Asp Ser Asp Ser Ser Met Asp Val Asp Pro Ala Gly Ser

1905 1910 1915 1920
Ser Asp Asn Leu Val Ala Arg Leu Thr Ser Val Ile Asp Ser His Arg
1925 1930 1935
Asn Tyr Leu Ser Asp Gly Met Val Ile Val Phe Tyr Gln Leu Cys Thr
1940 1945 1950
Leu Phe Val Gln Asn Ala Ser Glu His Ile His Asn Asn Asn Cys Lys
1955 1960 1965
Lys Gln Gly Gly Arg Leu Arg Ile Leu Met Leu Phe Ala Trp Pro Cys
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Leu Thr Met Tyr Asn His Gln Asp Pro Thr Met Arg Tyr Thr Gly Phe
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2005 2010 2015
Val Leu Gln Val Phe His Gln Leu Met Thr Thr Tyr Gln Gln Asp Thr
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2370 2375 2380

Leu Gly Ala Phe Ser Leu Leu Arg Thr Ile Cys Gly His Glu Pro Ala
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Tyr Leu Asp His Leu Met Pro Ser Phe Val Lys Val Met Glu Arg Ala
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Ala Lys Glu His Leu Ala Tyr Val Ala Asn Ser Gln Asp Gly Asn Met
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Val Lys Asn Phe Phe Pro Asp Val Ala Glu Leu Leu Cys Ala Cys Met
2435 2440 2445
Glu Leu Val Arg Pro Arg Val Asp His Ile Ser Met Glu Ile Lys Arg
2450 2455 2460
Ser Ile Val Gly Gly Ile Ile Ala Glu Leu Ile Ile Lys Ser Asn His
2465 2470 2475 2480
Asp Lys Ile Ile Gln Thr Ser Val Lys Leu Leu Gly Ala Met Ile Ser
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Cys His Arg Ile Gly Gln Thr Arg Asn Val Ser Ile Tyr Arg Leu Ile
            1300                1305                1310
Ser Glu Arg Thr Ile Glu Glu Asn Ile Leu Arg Lys Ala Thr Gln Lys
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Arg Arg Leu Gly Glu Leu Ala Ile Asp Glu Ala Gly Phe Thr Pro Glu
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Phe Phe Lys Gln Ser Asp Ser Ile Arg Asp Leu Phe Asp Gly Glu Asn
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Val Glu Val Thr Ala Val Ala Asp Val Ala Thr Thr Met Ser Glu Lys
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Glu Met Glu Val Ala Met Ala Lys Cys Glu Asp Glu Ala Asp Val Asn
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Ala Ala Lys Ile Ala Val Ala Glu Ala Asn Val Asp Asn Ala Glu Phe
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Asp Glu Lys Ser Leu Pro Pro Met Ser Asn Leu Gln Gly Asp Glu Glu
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Ala Asp Glu Lys Tyr Met Glu Leu Ile Gln Gln Leu Lys Pro Ile Glu
1425                1430                1435                1440
Arg Tyr Ala Ile Asn Phe Leu Glu Thr Gln Tyr Lys Pro Glu Phe Glu
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Glu Glu Cys Lys Glu Ala Glu Ala Leu Ile Asp Gln Lys Arg Glu Glu
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Trp Asp Lys Asn Leu Asn Asp Thr Ala Val Ile Asp Leu Asp Asp Ser
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Asp Ser Leu Leu Leu Asn Asp Pro Ser Thr Ser Ala Asp Phe Tyr Gln
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Ser Ser Ser Leu Leu Asp Glu Ile Lys Phe Tyr Asp Glu Leu Asp Asp
1505                1510                1515                1520
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Glu Gln Met Asn Glu Ala Arg Leu Pro Gln Val Cys His Glu Met Arg
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Arg Pro Leu Ala Glu Lys Gln Gln Lys Gln Asn Thr Leu Asn Ala Phe
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Asn Asp Ile Leu Ser Ala Lys Glu Lys Glu Ser Val Tyr Asp Ala Val
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Asn Lys Cys Leu Gln Met Pro Gln Ser Glu Ala Ile Thr Ala Glu Ser
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Ala Ala Ser Pro Ala Tyr Thr Glu His Ser Ser Phe Ser Met Asp Asp
            1620                1625                1630
Thr Ser Gln Asp Ala Lys Ile Glu Pro Ser Leu Thr Glu Asn Gln Gln
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Pro Thr Thr Thr Ala Thr Thr Thr Thr Thr Val Pro Gln Gln Gln Gln
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Gln Gln Gln Gln Gln Lys Ser Ser Lys Lys Lys Arg Asn Asp Asn Arg
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Thr Ala Gln Asn Arg Thr Ala Glu Asn Gly Val Lys Arg Ala Thr Thr
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Pro Pro Pro Ser Trp Arg Glu Glu Pro Asp Tyr Asp Gly Ala Glu Trp
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Asn Ile Val Glu Asp Tyr Ala Leu Leu Gln Ala Val Gln Val Glu Phe
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Ala Asn Ala His Leu Val Glu Lys Ser Ala Asn Glu Gly Met Val Leu
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Asn Trp Glu Phe Val Ser Asn Ala Val Asn Lys Gln Thr Arg Phe Phe
1745                1750                1755                1760
Arg Ser Ala Arg Gln Cys Ser Ile Arg Tyr Gln Met Phe Val Arg Pro
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Lys Glu Leu Gly Gln Leu Val Ala Ser Asp Pro Ile Ser Lys Lys Thr
            1780                1785                1790
Met Lys Val Asp Leu Ser His Thr Glu Leu Ser His Leu Arg Lys Gly
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Arg Met Thr Thr Glu Ser Gln Tyr Ala His Asp Tyr Gly Ile Leu Thr
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Asp Lys Lys His Val Asn Arg Phe Lys Ser Val Arg Val Ala Ala Thr
1825                1830                1835                1840
Arg Arg Pro Val Gln Phe Trp Arg Gly Pro Lys Gly Arg Gly Gly Trp
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Leu His Asn Ser His Cys Asn Phe Phe Leu Thr Arg Asp Glu Lys Lys
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Met Phe Gln Arg Lys
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Val Val Leu Pro Lys Lys Arg

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gct gta cag gac ggt ggt gcc gtt aag gag aac aaa gcc aag cca cct   2004
Ala Val Gln Asp Gly Gly Ala Val Lys Glu Asn Lys Ala Lys Pro Pro
 25                  30                  35                  40

gcc cct caa acg cct aca aaa cga gca aaa cga ggt cgt ccc ccg aaa   2052
Ala Pro Gln Thr Pro Thr Lys Arg Ala Lys Arg Gly Arg Pro Pro Lys
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Ile Lys Thr


aatacttgca g at gcc aat act ttg aat acg cca agc act tct tcc aac   2151
           Asp Ala Asn Thr Leu Asn Thr Pro Ser Thr Ser Ser Asn
            60                  65                  70

ttg gtc gat gac aaa ctt ctc att gag tct gaa tca cag gtaaattgat    2200
Leu Val Asp Asp Lys Leu Leu Ile Glu Ser Glu Ser Gln
         75                  80                  85

tcttttctat tcaaaaatta atctaaacta tacattccag gac tcg att ctc aca   2255
                                            Asp Ser Ile Leu Thr
                                                             90

aac gaa gcc gac tct ttt ctg gaa aaa gaa gtg gaa gaa atc gaa gat   2303
Asn Glu Ala Asp Ser Phe Leu Glu Lys Glu Val Glu Glu Ile Glu Asp
                 95                  100                 105

agt tca gat ata ctt ccc gat aaa att aat tct cca gaa aaa cca agt   2351
Ser Ser Asp Ile Leu Pro Asp Lys Ile Asn Ser Pro Glu Lys Pro Ser
           110                 115                 120

gtt ttg gtg aag cgg aga tcg agt acg cgg tta aaa gtg aag act gat   2399
Val Leu Val Lys Arg Arg Ser Ser Thr Arg Leu Lys Val Lys Thr Asp
        125                 130                 135

gaa gat gaa aaa gat gtt cct gtg aac ata gaa gta gcc gtt tta gaa   2447
Glu Asp Glu Lys Asp Val Pro Val Asn Ile Glu Val Ala Val Leu Glu
    140                 145                 150
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gaa aaa tca att caa atc gag cca aca tct ccc gct cac ccg gaa gat   2495
Glu Lys Ser Ile Gln Ile Glu Pro Thr Ser Pro Ala His Pro Glu Asp
155                 160                 165                 170

cct cag gtgagctttt tttaaaaata tgtattaatc aaaattcctt catttccag cct 2553
Pro Gln                                                     Pro


tcg act tct tct ctt cca ctg gta gaa cca att gaa gac att gtg gag   2601
Ser Thr Ser Ser Leu Pro Leu Val Glu Pro Ile Glu Asp Ile Val Glu
    175                 180                 185

cca aat gag cca aca agc tct gcc gat cct cca gta tca aat att aag   2649
Pro Asn Glu Pro Thr Ser Ser Ala Asp Pro Pro Val Ser Asn Ile Lys
190                 195                 200                 205

gat gag gat att aaa gaa gaa gag cca ctg att aaa aag cca gct tcc   2697
Asp Glu Asp Ile Lys Glu Glu Glu Pro Leu Ile Lys Lys Pro Ala Ser
                210                 215                 220

gat gag tca gaa tct atg gat ata gct aac tct gaa agt gga aat gat   2745
Asp Glu Ser Glu Ser Met Asp Ile Ala Asn Ser Glu Ser Gly Asn Asp
            225                 230                 235

tcc gat tca agt gaa gct gat cct agg acg ata cca tct ttc tct ata   2793
Ser Asp Ser Ser Glu Ala Asp Pro Arg Thr Ile Pro Ser Phe Ser Ile
        240                 245                 250

cct ctt ccc gac aca cca cct cca aat ttt gcg aaa aga gga gaa ata   2841
Pro Leu Pro Asp Thr Pro Pro Pro Asn Phe Ala Lys Arg Gly Glu Ile
    255                 260                 265

cat gta gat gta gat cag aaa aat tcc aag caa tca gga gaa tca caa   2889
His Val Asp Val Asp Gln Lys Asn Ser Lys Gln Ser Gly Glu Ser Gln
270                 275                 280                 285

tcg cct tgg gag cg gtaagaatat ttatcctagc caggtgttat aacaaaattg    2943
Ser Pro Trp Glu Arg
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aatagtttca g a gca aga gaa aag tct gca tcg aac cca ttg tcc tct    2991
              Ala Arg Glu Lys Ser Ala Ser Asn Pro Leu Ser Ser
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cca aca atg agc cga ccc agg ata cac ttc ctt cat cca gca tat caa   3039
Pro Thr Met Ser Arg Pro Arg Ile His Phe Leu His Pro Ala Tyr Gln
        305                 310                 315

agt ttc aca aat gat tca gtt tca cct cta cca cca ccg cca cca gag   3087
Ser Phe Thr Asn Asp Ser Val Ser Pro Leu Pro Pro Pro Pro Pro Glu
    320                 325                 330

ccg gct cca gct cgt gaa aaa gtg gaa aat ggt ggt cca act act ttc   3135
Pro Ala Pro Ala Arg Glu Lys Val Glu Asn Gly Gly Pro Thr Thr Phe
335                 340                 345                 350

aaa atg act ttc aaa aaa gct gca aat att cct atc ttg aag aca tcg   3183
Lys Met Thr Phe Lys Lys Ala Ala Asn Ile Pro Ile Leu Lys Thr Ser
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gca ttt gaa caa cca tca tca cct cca cct tcc tca tca gtt tct tca   3231
Ala Phe Glu Gln Pro Ser Ser Pro Pro Pro Ser Ser Ser Val Ser Ser
            370                 375                 380

tca att tca tta tct gaa gtg aat tct tct aca tcg ata gcc tcc gag   3279
Ser Ile Ser Leu Ser Glu Val Asn Ser Ser Thr Ser Ile Ala Ser Glu
        385                 390                 395

tct tct cca gcg aaa aga agc tca aat ttc gat tta act gcc tca aat   3327
Ser Ser Pro Ala Lys Arg Ser Ser Asn Phe Asp Leu Thr Ala Ser Asn
    400                 405                 410

gag ctt cca cca cct cag atg gtt gaa ctt ccc aag ctc tca ttt ttc   3375
Glu Leu Pro Pro Pro Gln Met Val Glu Leu Pro Lys Leu Ser Phe Phe
415                 420                 425                 430

aat atg cct cca gcc gtt cgc tcc gca gag gttagttaac tttttcccgg     3425
Asn Met Pro Pro Ala Val Arg Ser Ala Glu
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             Asp Asp Ser Ala Met Thr Ser Glu Glu Pro Ile Leu Leu
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ctc cgt tct ccg aat tcc gcc act cct gat gat gat gca ctt ttc ctc   3583
Leu Arg Ser Pro Asn Ser Ala Thr Pro Asp Asp Asp Ala Leu Phe Leu
    455                 460                 465

acg acc cca cca cca ccc aag atg acc gaa tca gaa att caa gca ctg   3631
Thr Thr Pro Pro Pro Pro Lys Met Thr Glu Ser Glu Ile Gln Ala Leu
470                 475                 480                 485

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                                                              Lys

gta gcg acg gaa aaa gtg aat caa gta att gct cga cgt gaa gat tct   4277
Val Ala Thr Glu Lys Val Asn Gln Val Ile Ala Arg Arg Glu Asp Ser
            490                 495                 500

gaa aaa gat gta cgt cac aga gaa gat cga gat gat tat gat aga cga   4325
Glu Lys Asp Val Arg His Arg Glu Asp Arg Asp Asp Tyr Asp Arg Arg
        505                 510                 515

cgt gac gac cgt gac aga aga tcc aga aag act gat tcg gaa cga aat   4373
Arg Asp Asp Arg Asp Arg Arg Ser Arg Lys Thr Asp Ser Glu Arg Asn
    520                 525                 530
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Asp Gln Arg Gly Arg Gln Arg Glu Asp Asp Glu Arg Arg Ala Arg Glu
535                 540                 545                 550

cga gaa aga gaa gtt acg aaa cga cat gat cgg gaa agg gaa gag atg   4469
Arg Glu Arg Glu Val Thr Lys Arg His Asp Arg Glu Arg Glu Glu Met
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cga tta cag aaa caa aaa gat gag gaa aga aga aag aaa gat gaa gag   4517
Arg Leu Gln Lys Gln Lys Asp Glu Glu Arg Arg Lys Lys Asp Glu Glu
            570                 575                 580

gaa agg ata caa aaa gag aat gat gag aaa aaa caa aaa gag gat gaa   4565
Glu Arg Ile Gln Lys Glu Asn Asp Glu Lys Lys Gln Lys Glu Asp Glu
        585                 590                 595

gcc aaa atg gag gag gag aaa aag aag att aaa gag gag gaa atg aag   4613
Ala Lys Met Glu Glu Glu Lys Lys Lys Ile Lys Glu Glu Glu Met Lys
    600                 605                 610

att cct gaa ttt gag ttg att agc gaa tca aaa tat ttg acg agg aat   4661
Ile Pro Glu Phe Glu Leu Ile Ser Glu Ser Lys Tyr Leu Thr Arg Asn
615                 620                 625                 630

gcg aat aaa aag aag act gaa tcc tta ac gtaagttatt atttataaat      4710
Ala Asn Lys Lys Lys Thr Glu Ser Leu Thr
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Arg Thr Gly Gly Asn Cys Ser Asp Asn Thr Cys Val Asn Arg Ala Met
645                 650                 655                 660

ctc acc gag tgc cca tca tca tgt cag gtc aaa tgc aag aat caa cga   5401
Leu Thr Glu Cys Pro Ser Ser Cys Gln Val Lys Cys Lys Asn Gln Arg
                665                 670                 675

ttt gca aag aaa aag tac gcg gct gtt gaa gca ttc cac act gga acc   5449
Phe Ala Lys Lys Lys Tyr Ala Ala Val Glu Ala Phe His Thr Gly Thr
            680                 685                 690

gcc aaa gga tgt gga ctt cga gca gtg aaa gac ata aaa aaa gga aga   5497
Ala Lys Gly Cys Gly Leu Arg Ala Val Lys Asp Ile Lys Lys Gly Arg
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Lys Arg Lys Thr Lys Tyr Ala Ala Asp Lys Lys His Lys His His Tyr
725                 730                 735                 740

ctc tgt gat act gga gtc tac acg atc gac gca aca gtc tac gga aat   5641
Leu Cys Asp Thr Gly Val Tyr Thr Ile Asp Ala Thr Val Tyr Gly Asn
                745                 750                 755

cca tct cga ttt gtg aat cat agt tgt gat cct aat gct ata tgt gag   5689
Pro Ser Arg Phe Val Asn His Ser Cys Asp Pro Asn Ala Ile Cys Glu
            760                 765                 770

aaa tgg tct gta cca aga act cct gga gac gtt aat cga gtt ggt ttc   5737
Lys Trp Ser Val Pro Arg Thr Pro Gly Asp Val Asn Arg Val Gly Phe
        775                 780                 785

ttc tcg aaa cga ttc att aaa gcc ggc gaa gaa atc aca ttt gat tat   5785
Phe Ser Lys Arg Phe Ile Lys Ala Gly Glu Glu Ile Thr Phe Asp Tyr
    790                 795                 800

caa ttt gtc aac tac gga cgt gac gct caa caa tgt ttc tgt gga agt   5833
Gln Phe Val Asn Tyr Gly Arg Asp Ala Gln Gln Cys Phe Cys Gly Ser
805                 810                 815                 820

gct tca tgt agt gga tgg att ggg cag aaa ccg gaa gaa ttt tca tct   5881
Ala Ser Cys Ser Gly Trp Ile Gly Gln Lys Pro Glu Glu Phe Ser Ser
                825                 830                 835

gat gag gat gat gat att gtg act aca agg cat att aat atg gat gaa   5929
Asp Glu Asp Asp Asp Ile Val Thr Thr Arg His Ile Asn Met Asp Glu
            840                 845                 850

gaa gaa gaa gaa aag ttg gaa ggt ctt gat cat ctt gga aat cat gaa   5977
Glu Glu Glu Glu Lys Leu Glu Gly Leu Asp His Leu Gly Asn His Glu
        855                 860                 865

cgg aat gaa gtg atc aag gat atg ttg gat gat ttg gtc att cgg aat   6025
Arg Asn Glu Val Ile Lys Asp Met Leu Asp Asp Leu Val Ile Arg Asn
    870                 875                 880

aag aag cat gct agg aag gtt atc aca att gcg gtaagcattt atttgtagag 6078
Lys Lys His Ala Arg Lys Val Ile Thr Ile Ala
885                 890                 895

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Val Ile Gln Glu Ile Phe Ser Ser Asp Thr Ser Val Thr Val Gln Lys
            910                 915                 920

ttc tat gca aaa gag gga atg gct aca ttg atg gct gaa tgg ttg tct   6824
Phe Tyr Ala Lys Glu Gly Met Ala Thr Leu Met Ala Glu Trp Leu Ser
        925                 930                 935

gaa gat gat tat tcg ctg gat aat ctg aaa ctt gtt caa gct att ctc   6872
Glu Asp Asp Tyr Ser Leu Asp Asn Leu Lys Leu Val Gln Ala Ile Leu
    940                 945                 950

aaa gct ctt cac act gaa cta ttc gat tcg tgc gcc aaa aat gat cga   6920
Lys Ala Leu His Thr Glu Leu Phe Asp Ser Cys Ala Lys Asn Asp Arg
955                 960                 965                 970

ctc tta cga gat tct aca tca cga tgg gtc aat gcg aaa atg gat gaa   6968
Leu Leu Arg Asp Ser Thr Ser Arg Trp Val Asn Ala Lys Met Asp Glu
                975                 980                 985

tat gtt gat ata caa gtg ata gct gat tca ctt att gct tgt gtt gaa   7016
Tyr Val Asp Ile Gln Val Ile Ala Asp Ser Leu Ile Ala Cys Val Glu
            990                 995                 1000

gat ccc gta cag gag tac aag gat gtt tgc aaa gtt ata gag           7058
Asp Pro Val Gln Glu Tyr Lys Asp Val Cys Lys Val Ile Glu
        1005                1010                1015

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ataatttcag aaa ggt ctc gtc gaa aac ttc aca aga gcc aaa gag atg     7647
           Lys Gly Leu Val Glu Asn Phe Thr Arg Ala Lys Glu Met
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gcc tat cgg tta aat caa tac tgg ttc aat cga tca gtg agc ttc aaa   7695
Ala Tyr Arg Leu Asn Gln Tyr Trp Phe Asn Arg Ser Val Ser Phe Lys
1030                1035                1040                1045

att cca aaa aag ata cgt gat cct gtg cca aaa gat gtt cca gtc aga   7743
Ile Pro Lys Lys Ile Arg Asp Pro Val Pro Lys Asp Val Pro Val Arg
                1050                1055                1060

caa gaa gat gct aca aca tca tca caa tct cat gat aat agt agt aga   7791
Gln Glu Asp Ala Thr Thr Ser Ser Gln Ser His Asp Asn Ser Ser Arg
            1065                1070                1075

act gta tca ccg aat cat cga cat cat tca tct tca tat tca aat tca   7839
Thr Val Ser Pro Asn His Arg His His Ser Ser Ser Tyr Ser Asn Ser
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Cys Tyr Gln Glu Arg Glu Pro Ser His Ile Arg Phe Phe Asn Asn Gly
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aat gat gtt cat caa tat cgt ttt gga ggt tat cat gga aat aac tac   7935
Asn Asp Val His Gln Tyr Arg Phe Gly Gly Tyr His Gly Asn Asn Tyr
1110                1115                1120                1125

aat gat aac tat ttc agt aga agg ccc aat aag gat tca tat cga gat   7983
Asn Asp Asn Tyr Phe Ser Arg Arg Pro Asn Lys Asp Ser Tyr Arg Asp
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cgc cgt cga ttt aat gga cgt cgt tcg aga agt cga tca aga agt gtc   8031
Arg Arg Arg Phe Asn Gly Arg Arg Ser Arg Ser Arg Ser Arg Ser Val
            1145                1150                1155

tca cca cag aac tat aaa aga aga aaa ctc gat gaa cat gac aat aat   8079
Ser Pro Gln Asn Tyr Lys Arg Arg Lys Leu Asp Glu His Asp Asn Asn
        1160                1165                1170

cat cgt cag cgt tct cca att cgt gat cgt cac aca tct ccc ggc ggc   8127
His Arg Gln Arg Ser Pro Ile Arg Asp Arg His Thr Ser Pro Gly Gly
    1175                1180                1185

gaa aag act cct agc tcg aat aat tct gga gaa cga aac tat aaa aga   8175
Glu Lys Thr Pro Ser Ser Asn Asn Ser Gly Glu Arg Asn Tyr Lys Arg
1190                1195                1200                1205

ctg gat att cga gga gct cgt ata aaa act ata aaa gaa gat ttg gaa   8223
Leu Asp Ile Arg Gly Ala Arg Ile Lys Thr Ile Lys Glu Asp Leu Glu
                1210                1215                1220

gct gct gct gct gct gct gct gct gct gct gta cca tca gaa gtg caa   8271
Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Val Pro Ser Glu Val Gln
            1225                1230                1235

gct tat cct cat gaa cat aca gct gta cat cag agt gtt tat cag atg   8319
Ala Tyr Pro His Glu His Thr Ala Val His Gln Ser Val Tyr Gln Met
        1240                1245                1250

cca ggt tat gag tct tat g gttggtttag ttttttaaa aatatcattt        8368
Pro Gly Tyr Glu Ser Tyr
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accagggtgc catttttaaa aataaaaata actcggaaaa tatgttttta aaaaatttca 8428
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                                              Gly Val Tyr Asp Pro
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gta aat ggt gtc tac atg tat cct cat cct ggc gct ggt tac tat cca   8832
Val Asn Gly Val Tyr Met Tyr Pro His Pro Gly Ala Gly Tyr Tyr Pro
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cct gcc tat cca caa caa ccg att atg tta aca atg gac act ctt cca   8880
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Pro Ala Tyr Pro Gln Gln Pro Ile Met Leu Thr Met Asp Thr Leu Pro
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ccg aat gat cgt ctt ggt gaa ctt tac gag aaa gcc agt atc gag cag   8928
Pro Asn Asp Arg Leu Gly Glu Leu Tyr Glu Lys Ala Ser Ile Glu Gln
            1300                1305                1310

cta gc gtgagcattt tttagtttaa acctttcgga tttacctaga aaaatgttac     8983
Leu Ala


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gccactcgaa tataataaca catgaaataa aattaaaatt attacag t caa cga gat 9520
                                                  Gln Arg Asp
                                                  1315

gca att gtg aga caa gaa ctt gag ctg ata cgt att caa atc gaa aga   9568
Ala Ile Val Arg Gln Glu Leu Glu Leu Ile Arg Ile Gln Ile Glu Arg
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Lys Thr Ala Gln Lys Glu Ala Ile Lys Ala Ala Cys Arg Arg Ala Asn
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gaa gaa gaa gct aaa cga caa gag gca ctt gca aag acg aaa tat gtt   9664
Glu Glu Glu Ala Lys Arg Gln Glu Ala Leu Ala Lys Thr Lys Tyr Val
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tgg gcg att gca aag tca gaa gct gga gag acg tat tac tac aac aaa   9712
Trp Ala Ile Ala Lys Ser Glu Ala Gly Glu Thr Tyr Tyr Tyr Asn Lys
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ata aca aaa gag acg cag tgg aca gca cca aca cca gtt caa ggt ctt   9760
Ile Thr Lys Glu Thr Gln Trp Thr Ala Pro Thr Pro Val Gln Gly Leu
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ctc gaa ccg gct tgt ggt gca tct cct gat act aca gtt gtc att gct   9808
Leu Glu Pro Ala Cys Gly Ala Ser Pro Asp Thr Thr Val Val Ile Ala
        1400                1405                1410

gac gag att act gaa gaa gag caa caa gct gaa gtt ctg gag aag ccg   9856
Asp Glu Ile Thr Glu Glu Glu Gln Gln Ala Glu Val Leu Glu Lys Pro
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cgt gtt gtt aag gaa gaa gtt atc gag cca ggt tca caa tct gaa act   9904
Arg Val Val Lys Glu Glu Val Ile Glu Pro Gly Ser Gln Ser Glu Thr
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Gln Lys Glu Ser Pro Glu Lys Val Arg Val Val Val Pro Lys Val Glu
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Val Glu Arg Ser Pro Ser Pro Lys Ser Ser Arg Asp Arg Glu Lys Asp
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cga gag aaa tct cgt gag aaa gat cgt gaa aga gat cgt gac aga aga   10048
Arg Glu Lys Ser Arg Glu Lys Asp Arg Glu Arg Asp Arg Asp Arg Arg
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gaa ggt tca aaa cat cgt gat agt tat cat gga cat cga aac ggc agc   10096
Glu Gly Ser Lys His Arg Asp Ser Tyr His Gly His Arg Asn Gly Ser
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agt tct gtc agt gaa cga cgt atg cga gag ttc aaa cat gag ctg gaa   10144
Ser Ser Val Ser Glu Arg Arg Met Arg Glu Phe Lys His Glu Leu Glu
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cga tcc act cga tct gcc gtt cgt tct cgt cta caa cat caa cgt gac   10192
Arg Ser Thr Arg Ser Ala Val Arg Ser Arg Leu Gln His Gln Arg Asp
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Ala Ser Ser Asp Lys Thr Thr Trp Leu Ile Lys Leu Ile Tyr Arg Glu
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Ile Phe Lys Arg Glu Ser Ala Gln Ser Gly Phe Asp Tyr Arg Phe Ser
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Glu Asn Thr Asp Lys Lys
    1575

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                 Val Lys Asn Tyr Val Lys Ser Tyr Ile Asp Arg
                 1580                1585                1590

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Lys Leu Glu Ser Asn Asp Leu Trp Lys Glu Tyr Ser Arg Pro  *
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Ala Lys Arg Gly Arg Pro Pro Lys Ile Lys Thr Asp Ala Asn Thr Leu
    50                  55                  60
Asn Thr Pro Ser Thr Ser Ser Asn Leu Val Asp Asp Lys Leu Leu Ile
65                  70                  75                  80
Glu Ser Glu Ser Gln Asp Ser Ile Leu Thr Asn Glu Ala Asp Ser Phe
                85                  90                  95
Leu Glu Lys Glu Val Glu Glu Ile Glu Asp Ser Ser Asp Ile Leu Pro
            100                 105                 110
Asp Lys Ile Asn Ser Pro Glu Lys Pro Ser Val Leu Val Lys Arg Arg
        115                 120                 125
Ser Ser Thr Arg Leu Lys Val Lys Thr Asp Glu Asp Glu Lys Asp Val
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Pro Val Asn Ile Glu Val Ala Val Leu Glu Glu Lys Ser Ile Gln Ile
145                 150                 155                 160
Glu Pro Thr Ser Pro Ala His Pro Glu Asp Pro Gln Pro Ser Thr Ser
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Ser Leu Pro Leu Val Glu Pro Ile Glu Asp Ile Val Glu Pro Asn Glu
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Pro Thr Ser Ser Ala Asp Pro Pro Val Ser Asn Ile Lys Asp Glu Asp
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Ile Lys Glu Glu Glu Pro Leu Ile Lys Lys Pro Ala Ser Asp Glu Ser
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Glu Ser Met Asp Ile Ala Asn Ser Glu Ser Gly Asn Asp Ser Asp Ser
225                 230                 235                 240
Ser Glu Ala Asp Pro Arg Thr Ile Pro Ser Phe Ser Ile Pro Leu Pro
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Asp Thr Pro Pro Pro Asn Phe Ala Lys Arg Gly Glu Ile His Val Asp
            260                 265                 270
Val Asp Gln Lys Asn Ser Lys Gln Ser Gly Glu Ser Gln Ser Pro Trp
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Glu Arg Ala Arg Glu Lys Ser Ala Ser Asn Pro Leu Ser Ser Pro Thr
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Met Ser Arg Pro Arg Ile His Phe Leu His Pro Ala Tyr Gln Ser Phe
305                 310                 315                 320
Thr Asn Asp Ser Val Ser Pro Leu Pro Pro Pro Pro Pro Glu Pro Ala
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Pro Ala Arg Glu Lys Val Glu Asn Gly Gly Pro Thr Thr Phe Lys Met
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Glu Gln Pro Ser Ser Pro Pro Pro Ser Ser Ser Val Ser Ser Ser Ile
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Pro Pro Pro Gln Met Val Glu Leu Pro Lys Leu Ser Phe Phe Asn Met
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Glu Pro Ile Leu Leu Leu Arg Ser Pro Asn Ser Ala Thr Pro Asp Asp
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Glu Ile Gln Ala Leu Lys Val Ala Thr Glu Lys Val Asn Gln Val Ile
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Ala Arg Arg Glu Asp Ser Glu Lys Asp Val Arg His Arg Glu Asp Arg
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Asp Asp Tyr Asp Arg Arg Arg Asp Asp Arg Asp Arg Arg Ser Arg Lys
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Glu Arg Arg Ala Arg Glu Arg Glu Arg Glu Val Thr Lys Arg His Asp
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Arg Lys Lys Asp Glu Glu Glu Arg Ile Gln Lys Glu Asn Asp Glu Lys
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Lys Gln Lys Glu Asp Glu Ala Lys Met Glu Glu Glu Lys Lys Lys Ile
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Lys Tyr Leu Thr Arg Asn Ala Asn Lys Lys Lys Thr Glu Ser Leu Thr
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Cys Glu Cys His Arg Thr Gly Gly Asn Cys Ser Asp Asn Thr Cys Val
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Lys Asn Gln Arg Phe Ala Lys Lys Lys Tyr Ala Ala Val Glu Ala Phe
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His Thr Gly Thr Ala Lys Gly Cys Gly Leu Arg Ala Val Lys Asp Ile
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Asp Asp Tyr Glu Lys Arg Lys Thr Lys Tyr Ala Ala Asp Lys Lys His
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Lys His His Tyr Leu Cys Asp Thr Gly Val Tyr Thr Ile Asp Ala Thr
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Val Tyr Gly Asn Pro Ser Arg Phe Val Asn His Ser Cys Asp Pro Asn
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Ala Ile Cys Glu Lys Trp Ser Val Pro Arg Thr Pro Gly Asp Val Asn
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Arg Val Gly Phe Phe Ser Lys Arg Phe Ile Lys Ala Gly Glu Glu Ile
785                 790                 795                 800
Thr Phe Asp Tyr Gln Phe Val Asn Tyr Gly Arg Asp Ala Gln Gln Cys
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Phe Cys Gly Ser Ala Ser Cys Ser Gly Trp Ile Gly Gln Lys Pro Glu
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Glu Phe Ser Ser Asp Glu Asp Asp Asp Ile Val Thr Thr Arg His Ile
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Asn Met Asp Glu Glu Glu Glu Glu Lys Leu Glu Gly Leu Asp His Leu
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Gly Asn His Glu Arg Asn Glu Val Ile Lys Asp Met Leu Asp Asp Leu
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Val Ile Arg Asn Lys Lys His Ala Arg Lys Val Ile Thr Ile Ala Ser
885 890 895
Ala Met Thr Asp Tyr Ser Gln Arg Val Asp Val Ile Gln Glu Ile Phe
900 905 910
Ser Ser Asp Thr Ser Val Thr Val Gln Lys Phe Tyr Ala Lys Glu Gly
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Met Ala Thr Leu Met Ala Glu Trp Leu Ser Glu Asp Asp Tyr Ser Leu
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995 1000 1005
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cca tcg aat aac gta gat acg agc agt att ctt tcg gat gat ggg atg 1063
Pro Ser Asn Asn Val Asp Thr Ser Ser Ile Leu Ser Asp Asp Gly Met
               10   15   20

gaa aca cag gaa caa agt tca ttc gtc act gct gtgagtgaaa ttatttaaaa 1116
Glu Thr Gln Glu Gln Ser Ser Phe Val Thr Ala
           25   30

tttcgcttcg gagattcatt gtcatataat tcaatttatc gattttcag aca att gac 1174
                                                  Thr Ile Asp
                                                      35

cta aca gtg gac gac tac gat gaa aca gaa ata cag gag att ctg gat 1222
Leu Thr Val Asp Asp Tyr Asp Glu Thr Glu Ile Gln Glu Ile Leu Asp
               40   45   50

aat gga aaa gca gaa gaa gga aca gat gaa gat tct gat tta gtt gaa 1270
Asn Gly Lys Ala Glu Glu Gly Thr Asp Glu Asp Ser Asp Leu Val Glu
           55   60   65

ggg att ctt aac gct aat tca gat gtc caa gcg ctc ctt gat gcg cca 1318
Gly Ile Leu Asn Ala Asn Ser Asp Val Gln Ala Leu Leu Asp Ala Pro
       70   75   80

tct gag caa gta gct caa gct ctt aat tcg ttc ttc gga aat gag agt 1366
Ser Glu Gln Val Ala Gln Ala Leu Asn Ser Phe Phe Gly Asn Glu Ser
   85   90   95

gaa caa gaa gct gtt gca gca caa aga cgg gtt gat gcg gag aag act 1414
Glu Gln Glu Ala Val Ala Ala Gln Arg Arg Val Asp Ala Glu Lys Thr
100   105   110   115

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gcc aaa gat gaa gct gaa ctc aag caa cag gaa gag gcg gttagattgc    1463
Ala Lys Asp Glu Ala Glu Leu Lys Gln Gln Glu Glu Ala
                120                 125

aataaaggaa acaataataa aattatttta ttttcag gaa gat ctt att ata gaa  1518
                                        Glu Asp Leu Ile Ile Glu
                                            130

gat tcg ata gtc aaa act gat gaa gaa aaa caa gca gtt cga aga ctg   1566
Asp Ser Ile Val Lys Thr Asp Glu Glu Lys Gln Ala Val Arg Arg Leu
135                 140                 145                 150

aaa atc aac gaa ttt tta tcg tgg ttc aca agg ctc ctt cca gaa caa   1614
Lys Ile Asn Glu Phe Leu Ser Trp Phe Thr Arg Leu Leu Pro Glu Gln
                155                 160                 165

ttt aaa aat ttc gaa ttc aca aat ccg aac tat ctg aca gaa tct atc   1662
Phe Lys Asn Phe Glu Phe Thr Asn Pro Asn Tyr Leu Thr Glu Ser Ile
            170                 175                 180

agc gat tca ccg gtt gta aat gtc gat aaa tgc aag gaa att gtc aaa   1710
Ser Asp Ser Pro Val Val Asn Val Asp Lys Cys Lys Glu Ile Val Lys
        185                 190                 195

tcg ttc aag gaa agt gaa tca ctt gag gga ctt tca cag aaa tac gaa   1758
Ser Phe Lys Glu Ser Glu Ser Leu Glu Gly Leu Ser Gln Lys Tyr Glu
    200                 205                 210

tta att gat gaa gac gtg cta gtc gct gct att tgt att ggc gtt ctc   1806
Leu Ile Asp Glu Asp Val Leu Val Ala Ala Ile Cys Ile Gly Val Leu
215                 220                 225                 230

gat acc aac aac gaa gaa gat gtc gac ttt aat gtt cta tgt gat gat   1854
Asp Thr Asn Asn Glu Glu Asp Val Asp Phe Asn Val Leu Cys Asp Asp
                235                 240                 245

cgt atc gac gat tgg agt ata gaa aaa tgt gtc act ttt ctt gat tat   1902
Arg Ile Asp Asp Trp Ser Ile Glu Lys Cys Val Thr Phe Leu Asp Tyr
            250                 255                 260

cca aat act gga ttg aat tcg aaa aat gga ccg ttg aga ttc atg cag   1950
Pro Asn Thr Gly Leu Asn Ser Lys Asn Gly Pro Leu Arg Phe Met Gln
        265                 270                 275

ttt act gtc aca tca cct gca tca gca att ctc atg ctc act ctg att   1998
Phe Thr Val Thr Ser Pro Ala Ser Ala Ile Leu Met Leu Thr Leu Ile
    280                 285                 290

cga tta cgc gaa gaa ggg cat ccg tgt cga tta gat ttt gat tca aat   2046
Arg Leu Arg Glu Glu Gly His Pro Cys Arg Leu Asp Phe Asp Ser Asn
295                 300                 305                 310

ccg act gat gat tta ctc ttg aat ttc gat caa gtg gaa ttt tct aat   2094
Pro Thr Asp Asp Leu Leu Leu Asn Phe Asp Gln Val Glu Phe Ser Asn
                315                 320                 325

aat atc att gat acg gca gtc aaa tac tgg gat gat cag aag gaa aac   2142
Asn Ile Ile Asp Thr Ala Val Lys Tyr Trp Asp Asp Gln Lys Glu Asn
            330                 335                 340
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ggt gcg cag gat aaa att ggc agg cga gta tta atc aaa ctc aca act   2190
Gly Ala Gln Asp Lys Ile Gly Arg Arg Val Leu Ile Lys Leu Thr Thr
        345                 350                 355

gtt ttg aaa gtattttcat aattatcact taaatacctt ttagagagct          2239
Val Leu Lys
    360

caacgacttc ttccacgaaa tcgagtcaac atcagcagaa ttcaaacaac attttgag   2297
aac gcc gtt ggc agc cgt aat gaa ata att caa ctt gtc aac gag aaa   2345
Asn Ala Val Gly Ser Arg Asn Glu Ile Ile Gln Leu Val Asn Glu Lys
            365                 370                 375

att ccc gat ttt gat ggc act gag gct gct gtg aat gag agt ttt aca   2393
Ile Pro Asp Phe Asp Gly Thr Glu Ala Ala Val Asn Glu Ser Phe Thr
        380                 385                 390

tcc gat caa cga acc gaa att atc aac tct cgt gca ata atg gag aca   2441
Ser Asp Gln Arg Thr Glu Ile Ile Asn Ser Arg Ala Ile Met Glu Thr
    395                 400                 405

tta aaa gcc gag atg aag ctc gcc atc gcc gaa gct cag aaa gtt tac   2489
Leu Lys Ala Glu Met Lys Leu Ala Ile Ala Glu Ala Gln Lys Val Tyr
410                 415                 420                 425

gac acc aag act gac ttc gaa aaa ttc ttc gtt ttg aca gtt gga gat   2537
Asp Thr Lys Thr Asp Phe Glu Lys Phe Phe Val Leu Thr Val Gly Asp
                430                 435                 440

ttc tgt ctg gct cgc gcc aat cct tct gac gat gca gaa tta aca tac   2585
Phe Cys Leu Ala Arg Ala Asn Pro Ser Asp Asp Ala Glu Leu Thr Tyr
            445                 450                 455

gcc ata gtt cag gat cgt gtg gat gca atg acc tat aag gtt aaa ttt   2633
Ala Ile Val Gln Asp Arg Val Asp Ala Met Thr Tyr Lys Val Lys Phe
        460                 465                 470

atc gac aca agt cag atc aga gag tgt aac atc aga gat tta gcc atg   2681
Ile Asp Thr Ser Gln Ile Arg Glu Cys Asn Ile Arg Asp Leu Ala Met
    475                 480                 485

act acg cag gga atg tat gac ccg agt ttg aat aca ttt ggt gat gtt   2729
Thr Thr Gln Gly Met Tyr Asp Pro Ser Leu Asn Thr Phe Gly Asp Val
490                 495                 500                 505

g gtgagtttta agttaaaatt gatatttaat attacatctg ttatgtagaa          2780
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caa gtt att tcc tcg agc caa ttt gga aaa aaa aca att tgg ctt acc   3301
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Gln Val Ile Ser Ser Ser Gln Phe Gly Lys Lys Thr Ile Trp Leu Thr
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ggt aca gct gcc gga cgt cgc aga gct cat aga tcc gat ttt cta att   3349
Gly Thr Ala Ala Gly Arg Arg Arg Ala His Arg Ser Asp Phe Leu Ile
    530                 535                 540

ttc ttc gac aac gga acc gat gca tac gtg tca gct ccg aca atg cct   3397
Phe Phe Asp Asn Gly Thr Asp Ala Tyr Val Ser Ala Pro Thr Met Pro
545                 550                 555                 560

ggt gaa cca ggt tat gaa gtt gct tct gaa aag aaa agt gta ttt tct   3445
Gly Glu Pro Gly Tyr Glu Val Ala Ser Glu Lys Lys Ser Val Phe Ser
                565                 570                 575

ctc aaa gaa atg att gcg aag atg aat gct gct cag att gct att atg   3493
Leu Lys Glu Met Ile Ala Lys Met Asn Ala Ala Gln Ile Ala Ile Met
            580                 585                 590

gtt gga cag cca gta gga aag gaa gga aat ctg gat tat ttt ttg aca   3541
Val Gly Gln Pro Val Gly Lys Glu Gly Asn Leu Asp Tyr Phe Leu Thr
        595                 600                 605

ttt cat tgg att cga caa tct cac aga tca gcg tat att cgg gat ttt   3589
Phe His Trp Ile Arg Gln Ser His Arg Ser Ala Tyr Ile Arg Asp Phe
    610                 615                 620

atg aaa gaa ttt ccg gaa tgg cca ctt ctc aag atg cca gtt gga atg   3637
Met Lys Glu Phe Pro Glu Trp Pro Leu Leu Lys Met Pro Val Gly Met
625                 630                 635                 640

cga atc tgt ttg tac aat tct ctt gtt gat cga cgt aag aaa atg gtg   3685
Arg Ile Cys Leu Tyr Asn Ser Leu Val Asp Arg Arg Lys Lys Met Val
                645                 650                 655

aca gtg att gga act gat cga gct ttt gct att gtg aga cac gaa gca   3733
Thr Val Ile Gly Thr Asp Arg Ala Phe Ala Ile Val Arg His Glu Ala
            660                 665                 670

ccg aat cca ttg gct cct ggg aat aga tgt aca gac ttt ccg tgc aat   3781
Pro Asn Pro Leu Ala Pro Gly Asn Arg Cys Thr Asp Phe Pro Cys Asn
        675                 680                 685

gat aga aat cat cag cat att gac gag aaa atc tat aga gga tct cat   3829
Asp Arg Asn His Gln His Ile Asp Glu Lys Ile Tyr Arg Gly Ser His
    690                 695                 700

aga ttg gaa ggc gca gcg gtaagatttt atttgaaaaa ttgatacaaa          3877
Arg Leu Glu Gly Ala Ala
705                 710

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                                    His Lys Lys His Met Ile Ser Thr
                                                    715
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aat aac aat ctg tcg caa cgc aga aaa gac cag ctt caa tca cag ttc   4219
Asn Asn Asn Leu Ser Gln Arg Arg Lys Asp Gln Leu Gln Ser Gln Phe
    720                 725                 730

gag cca acc gac atg att cgt tcg atg cca gag agg aat cac caa caa   4267
Glu Pro Thr Asp Met Ile Arg Ser Met Pro Glu Arg Asn His Gln Gln
735                 740                 745                 750

gtc gtt aaa aag aaa acg acg ggc acc aat cag aat gtc gct tcg aca   4315
Val Val Lys Lys Lys Thr Thr Gly Thr Asn Gln Asn Val Ala Ser Thr
                755                 760                 765

aat gat gca aaa tcg aag aga gaa att gaa ata aga aag aaa aat caa   4363
Asn Asp Ala Lys Ser Lys Arg Glu Ile Glu Ile Arg Lys Lys Asn Gln
            770                 775                 780

ttc tta ttt aac aag att att gtt cca ata ccc gtc cta aca cca ttg   4411
Phe Leu Phe Asn Lys Ile Ile Val Pro Ile Pro Val Leu Thr Pro Leu
        785                 790                 795

gaa aat ctc aag gct cat gct caa tgt ggt cca gat tgt cta cag aaa   4459
Glu Asn Leu Lys Ala His Ala Gln Cys Gly Pro Asp Cys Leu Gln Lys
    800                 805                 810

atg gat gcg gat ccg tat gaa gca aga ttc cat cga aat tca cca ata   4507
Met Asp Ala Asp Pro Tyr Glu Ala Arg Phe His Arg Asn Ser Pro Ile
815                 820                 825                 830

cat act cct ctt ttg tgt ggt tgg aga cga att atg tac aca atg agt   4555
His Thr Pro Leu Leu Cys Gly Trp Arg Arg Ile Met Tyr Thr Met Ser
                835                 840                 845

act gga aag aag cgg gga gca gtg aag aaa aac att att tac ttt tct   4603
Thr Gly Lys Lys Arg Gly Ala Val Lys Lys Asn Ile Ile Tyr Phe Ser
            850                 855                 860

cca tgc gga gcc gct ctt cac cag atc agc gac gtc tct gaa tat att   4651
Pro Cys Gly Ala Ala Leu His Gln Ile Ser Asp Val Ser Glu Tyr Ile
        865                 870                 875

cat gtc acc aga agt tta ttg acg att gat tgt ttt tca ttt gat gca   4699
His Val Thr Arg Ser Leu Leu Thr Ile Asp Cys Phe Ser Phe Asp Ala
    880                 885                 890

cga atc gat act gcc act tat att act gtt gac gat aaa tat ttg aag   4747
Arg Ile Asp Thr Ala Thr Tyr Ile Thr Val Asp Asp Lys Tyr Leu Lys
895                 900                 905                 910

gtt gct gat ttt tcg ctt gga acc gaa gga atc cca att cca cta gtg   4795
Val Ala Asp Phe Ser Leu Gly Thr Glu Gly Ile Pro Ile Pro Leu Val
                915                 920                 925

aac agc gtg gat aac gat gag cct cca tca ttg gaa tat tcg aaa cga   4843
Asn Ser Val Asp Asn Asp Glu Pro Pro Ser Leu Glu Tyr Ser Lys Arg
            930                 935                 940

cga ttc caa tac aat gat caa gtg gat ata tcg agt gtt agc cga gat   4891
Arg Phe Gln Tyr Asn Asp Gln Val Asp Ile Ser Ser Val Ser Arg Asp
        945                 950                 955
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ttc tgt tct gga tgc tct tgt gat ggt gat tgc agt gac gca tcg aag   4939
Phe Cys Ser Gly Cys Ser Cys Asp Gly Asp Cys Ser Asp Ala Ser Lys
    960                 965                 970

tgt gaa tgc caa caa ttg tcc att gaa gca atg aaa cga ctc ccc cat   4987
Cys Glu Cys Gln Gln Leu Ser Ile Glu Ala Met Lys Arg Leu Pro His
975                 980                 985                 990

aat tta caa ttc gac gga cac gac gaa ttg tat gag agt tca gaa aaa   5035
Asn Leu Gln Phe Asp Gly His Asp Glu Leu Tyr Glu Ser Ser Glu Lys
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caa aat aaa ttt tta aaa cta ttt ttt ttc aga gtt cct cac tat caa   5083
Gln Asn Lys Phe Leu Lys Leu Phe Phe Phe Arg Val Pro His Tyr Gln
           1010                1015                1020

aat cgt ctt ctc agc agt aag gtt atc agt gga ctc tat gaa tgc aac   5131
Asn Arg Leu Leu Ser Ser Lys Val Ile Ser Gly Leu Tyr Glu Cys Asn
       1025                1030                1035

gat cag tgt tca tgc cat cga aag tct tgt tac aac aga gtt gtt cag   5179
Asp Gln Cys Ser Cys His Arg Lys Ser Cys Tyr Asn Arg Val Val Gln
    1040                1045                1050

aac aat atc aag tat cct atg cat gtg agt tta ttt aac gat gat aca   5227
Asn Asn Ile Lys Tyr Pro Met His Val Ser Leu Phe Asn Asp Asp Thr
1055                1060                1065                1070

tac caa tta ttg ttt ttt ctt cag atc ttc aaa act gct caa tcc gga   5275
Tyr Gln Leu Leu Phe Phe Leu Gln Ile Phe Lys Thr Ala Gln Ser Gly
                1075                1080                1085

tgg gga gtc cga gct ttg acg gat att cct caa agt acg ttc att tgc   5323
Trp Gly Val Arg Ala Leu Thr Asp Ile Pro Gln Ser Thr Phe Ile Cys
           1090                1095                1100

acg tat gta ggt gct ata ctg acg gat gat ttg gct gat gaa cta aga   5371
Thr Tyr Val Gly Ala Ile Leu Thr Asp Asp Leu Ala Asp Glu Leu Arg
       1105                1110                1115

aat gcg gat caa tac ttc gct gat ttg gac ttg aag gat acc gtg gag   5419
Asn Ala Asp Gln Tyr Phe Ala Asp Leu Asp Leu Lys Asp Thr Val Glu
    1120                1125                1130

ctg gaa aag ggt cgc gaa gat cat gaa act gat ttt ggt tac gga gga   5467
Leu Glu Lys Gly Arg Glu Asp His Glu Thr Asp Phe Gly Tyr Gly Gly
1135                1140                1145                1150

gac gag tca gat tat gat gac gaa gaa gga agt gat ggt gac tcc ggt   5515
Asp Glu Ser Asp Tyr Asp Asp Glu Glu Gly Ser Asp Gly Asp Ser Gly
                1155                1160                1165

gat gat gta atg aac aaa atg gtg aaa cgt caa gac tct tcg gag agt   5563
Asp Asp Val Met Asn Lys Met Val Lys Arg Gln Asp Ser Ser Glu Ser
           1170                1175                1180

ggt gaa gaa aca aaa cgg ctg aca aga cag aaa aga aag caa tct aaa   5611
Gly Glu Glu Thr Lys Arg Leu Thr Arg Gln Lys Arg Lys Gln Ser Lys
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Lys Ser Gly Lys Gly Gly Ser Val Glu Lys Asp Asp Thr Thr Pro Arg
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gat tca atg gaa aag gat aat att gaa agt aaa gac gaa ccc gtt ttc   5707
Asp Ser Met Glu Lys Asp Asn Ile Glu Ser Lys Asp Glu Pro Val Phe
1215                1220                1225                1230

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Asn Trp Asp Lys Tyr Phe Glu Pro Phe Pro Leu Tyr Val Ile Asp Ala
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Met Tyr Asp Thr His Asp Leu Arg Leu Pro Trp Val Ala Phe Phe Thr
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cga aaa tac gtg aaa gcc ggc gat gag cta acc tgg gac tat caa tat   6252
Arg Lys Tyr Val Lys Ala Gly Asp Glu Leu Thr Trp Asp Tyr Gln Tyr
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act caa gat cag acg gct acc aca caa ctc aca tgc cac tgc gga gct   6300
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Ile Leu Asp Asn Gly Lys Ala Glu Glu Gly Thr Asp Glu Asp Ser Asp
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Lys Glu Leu Thr Asn Glu Ile Thr Gly Met Arg Val Gln Met Asn Lys
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cta cgt tca atg gtc act cag cct acg act tcg aaa att att gat agt   8137
Leu Arg Ser Met Val Thr Gln Pro Thr Thr Ser Lys Ile Ile Asp Ser
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Phe Val Gln Arg His Gln Ala Phe Glu Gln Gln Gln Gln Phe Gln His
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caa cac cac caa cac cga cca ata atg ttg gct cca cgt cat cat ccg   8233
Gln His His Gln His Arg Pro Ile Met Leu Ala Pro Arg His His Pro
            430                 435                 440

ccg ccg ccc ccg cat ttt aca ccg aat caa cgg gcg gcg gct ccg tat   8281
Pro Pro Pro Pro His Phe Thr Pro Asn Gln Arg Ala Ala Ala Pro Tyr
        445                 450                 455

cat ccg aat atg gtt caa ccg aat cgt ctt gct gct atg cca cat aga   8329
His Pro Asn Met Val Gln Pro Asn Arg Leu Ala Ala Met Pro His Arg
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Arg Pro Ile Ile Gly Met Gln
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Asn Gly His Gln Ala Leu Val Pro Ser Pro Gln Ser Ser Ser Ala Phe
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Leu Ser Val Thr Ile His Ser Ser Ala Gln Asp Phe Arg Glu Asn Tyr
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Pro Glu Asp Arg Ile Ser Ile Asp Trp Gly Cys Ser Lys Leu Trp Pro
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Cys Lys Pro Lys Ser His His Lys Phe Arg Val Arg Phe His Gln Ala
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Val Pro Gly Ser Thr Glu Ala Gln Asp Ala Gln Asp Val Pro Asp Ser
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Tyr Cys Thr Leu Asn Asp Ser Asn Pro Ser Leu Cys Asn Ser Glu Ala
145                 150                 155                 160
Glu Asn Ile Glu Pro Ser Val Met Lys Ile Ser Ser Asn Ser Phe Met
                165                 170                 175
Asn Val His Leu Glu Ser Lys Pro Val Ile Cys Asp Ser Arg Asn Leu
            180                 185                 190
Thr Asp His Ser Lys Phe Ala Cys Glu Glu Tyr Lys Gln Ser Ile Gly
        195                 200                 205
Ser Thr Ser Ser Ala Ser Val Asn His Phe Asp Asp Leu Tyr Gln Pro
    210                 215                 220
Ile Gly Ser Ser Gly Ile Ala Ser Ser Leu Gln Ser Leu Pro Pro Gly
225                 230                 235                 240
Ile Lys Val Asp Ser Leu Thr Leu Leu Lys Cys Gly Glu Asn Thr Ser
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                245                 250                 255
Pro Val Leu Asp Ala Val Leu Lys Ser Lys Lys Ser Ser Glu Phe Leu
            260                 265                 270
Lys His Ala Gly Lys Glu Thr Ile Val Glu Val Gly Ser Asp Leu Pro
        275                 280                 285
Asp Ser Gly Lys Gly Phe Ala Ser Arg Glu Asn Arg Arg Asn Asn Gly
    290                 295                 300
Leu Ser Gly Lys Cys Leu Gln Glu Ala Gln Glu Glu Gly Asn Ser Ile
305                 310                 315                 320
Leu Pro Glu Arg Arg Gly Arg Pro Glu Ile Ser Leu Asp Glu Arg Gly
                325                 330                 335
Glu Gly Gly His Val His Thr Ser Asp Asp Ser Glu Val Val Phe Ser
            340                 345                 350
Ser Cys Asp Leu Asn Leu Thr Met Glu Asp Ser Asp Gly Val Thr Tyr
        355                 360                 365
Ala Leu Lys Cys Asp Ser Ser Gly His Ala Pro Glu Ile Val Ser Thr
    370                 375                 380
Val His Glu Asp Tyr Ser Gly Ser Ser Glu Ser Ser Asn Asp Glu Ser
385                 390                 395                 400
Asp Ser Glu Asp Thr Asp Ser Asp Asp Ser Ser Ile Pro Arg Asn Arg
                405                 410                 415
Leu Gln Ser Val Val Val Val Pro Lys Asn Ser Thr Leu Pro Met Glu
            420                 425                 430
Glu Thr Ser Pro Cys Ser Ser Arg Ser Ser Gln Ser Tyr Arg His Tyr
        435                 440                 445
Ser Asp His Trp Glu Asp Glu Arg Leu Glu Ser Arg Arg His Leu Tyr
    450                 455                 460
Glu Glu Lys Phe Glu Ser Ile Ala Ser Lys Ala Cys Pro Gln Thr Asp
465                 470                 475                 480
Lys Phe Phe Leu His Lys Gly Thr Glu Lys Asn Pro Glu Ile Ser Phe
                485                 490                 495
Thr Gln Ser Ser Arg Lys Gln Ile Asp Asn Arg Leu Pro Glu Leu Ser
            500                 505                 510
His Pro Gln Ser Asp Gly Val Asp Ser Thr Ser His Thr Asp Val Lys
        515                 520                 525
Ser Asp Pro Leu Gly His Pro Asn Ser Glu Glu Thr Val Lys Ala Lys
    530                 535                 540
Ile Pro Ser Arg Gln Gln Glu Glu Leu Pro Ile Tyr Ser Ser Asp Phe
545                 550                 555                 560
Glu Asp Val Pro Asn Lys Ser Trp Gln Gln Thr Thr Phe Gln Asn Arg
                565                 570                 575
Pro Asp Ser Arg Leu Gly Lys Thr Glu Leu Ser Phe Ser Ser Ser Cys
            580                 585                 590
Glu Ile Pro His Val Asp Gly Leu His Ser Ser Glu Glu Leu Arg Asn
        595                 600                 605
Leu Gly Trp Asp Phe Ser Gln Glu Lys Pro Ser Thr Thr Tyr Gln Gln
    610                 615                 620
Pro Asp Ser Ser Tyr Gly Ala Cys Gly Gly His Lys Tyr Gln Gln Asn
625                 630                 635                 640
Ala Glu Gln Tyr Gly Gly Thr Arg Asp Tyr Trp Gln Gly Asn Gly Tyr
                645                 650                 655
Trp Asp Pro Arg Ser Gly Arg Pro Pro Gly Thr Gly Val Val Tyr Asp
            660                 665                 670
Arg Thr Gln Gly Gln Val Pro Asp Ser Leu Thr Asp Asp Arg Glu Glu
        675                 680                 685
Glu Glu Asn Trp Asp Gln Gln Asp Gly Ser His Phe Ser Asp Gln Ser
    690                 695                 700
Asp Lys Phe Leu Leu Ser Leu Gln Lys Asp Lys Gly Ser Val Gln Ala
705                 710                 715                 720
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Pro Glu Ile Ser Ser Asn Ser Ile Lys Asp Thr Leu Ala Val Asn Glu
725 730 735
Lys Lys Asp Phe Ser Lys Asn Leu Glu Lys Asn Asp Ile Lys Asp Arg
740 745 750
Gly Pro Leu Lys Lys Arg Arg Gln Glu Ile Glu Ser Asp Ser Glu Ser
755 760 765
Asp Gly Glu Leu Gln Asp Arg Lys Lys Val Arg Val Glu Val Glu Gln
770 775 780
Gly Glu Thr Ser Val Pro Pro Gly Ser Ala Leu Val Gly Pro Ser Cys
785 790 795 800
Val Met Asp Asp Phe Arg Asp Pro Gln Arg Trp Lys Glu Cys Ala Lys
805 810 815
Gln Gly Lys Met Pro Cys Tyr Phe Asp Leu Ile Glu Glu Asn Val Tyr
820 825 830
Leu Thr Glu Arg Lys Lys Asn Lys Ser His Arg Asp Ile Lys Arg Met
835 840 845
Gln Cys Glu Cys Thr Pro Leu Ser Lys Asp Glu Arg Ala Gln Gly Glu
850 855 860
Ile Ala Cys Gly Glu Asp Cys Leu Asn Arg Leu Leu Met Ile Glu Cys
865 870 875 880
Ser Ser Arg Cys Pro Asn Gly Asp Tyr Cys Ser Asn Arg Arg Phe Gln
885 890 895
Arg Lys Gln His Ala Asp Val Glu Val Ile Leu Thr Glu Lys Lys Gly
900 905 910
Trp Gly Leu Arg Ala Ala Lys Asp Leu Pro Ser Asn Thr Phe Val Leu
915 920 925
Glu Tyr Cys Gly Glu Val Leu Asp His Lys Glu Phe Lys Ala Arg Val
930 935 940
Lys Glu Tyr Ala Arg Asn Lys Asn Ile His Tyr Tyr Phe Met Ala Leu
945 950 955 960
Lys Asn Asp Glu Ile Ile Asp Ala Thr Gln Lys Gly Asn Cys Ser Arg
965 970 975
Phe Met Asn His Ser Cys Glu Pro Asn Cys Glu Thr Gln Lys Trp Thr
980 985 990
Val Asn Gly Gln Leu Arg Val Gly Phe Phe Thr Thr Lys Leu Val Pro
995 1000 1005
Ser Gly Ser Glu Leu Thr Phe Asp Tyr Gln Phe Gln Arg Tyr Gly Lys
1010 1015 1020
Glu Ala Gln Lys Cys Phe Cys Gly Ser Ala Asn Cys Arg Gly Tyr Leu
1025 1030 1035 1040
Gly Gly Glu Asn Arg Val Ser Ile Arg Ala Ala Gly Gly Lys Met Lys
1045 1050 1055
Lys Glu Arg Ser Arg Lys Lys Asp Ser Val Asp Gly Glu Leu Glu Ala
1060 1065 1070
Leu Met Glu Asn Gly Glu Gly Leu Ser Asp Lys Asn Gln Val Leu Ser
1075 1080 1085
Leu Ser Arg Leu Met Val Arg Ile Glu Thr Leu Glu Gln Lys Leu Thr
1090 1095 1100
Cys Leu Glu Leu Ile Gln Asn Thr His Ser Gln Ser Cys Leu Lys Ser
1105 1110 1115 1120
Phe Leu Glu Arg His Gly Leu Ser Leu Leu Trp Ile Trp Met Ala Glu
1125 1130 1135
Leu Gly Asp Gly Arg Glu Ser Asn Gln Lys Leu Gln Glu Glu Ile Ile
1140 1145 1150
Lys Thr Leu Glu His Leu Pro Ile Pro Thr Lys Asn Met Leu Glu Glu
1155 1160 1165
Ser Lys Val Leu Pro Ile Ile Gln Arg Trp Ser Gln Thr Lys Thr Ala
1170 1175 1180
Val Pro Pro Leu Ser Glu Gly Asp Gly Tyr Ser Ser Glu Asn Thr Ser

1185 1190 1195 1200
Arg Ala His Thr Pro Leu Asn Thr Pro Asp Pro Ser Thr Lys Leu Ser
1205 1210 1215
Thr Glu Ala Asp Thr Asp Thr Pro Lys Lys Leu Met Phe Arg Arg Leu
1220 1225 1230
Lys Ile Ile Ser Glu Asn Ser Met Asp Ser Ala Ile Ser Asp Ala Thr
1235 1240 1245
Ser Glu Leu Glu Gly Lys Asp Gly Lys Glu Asp Leu Asp Gln Leu Glu
1250 1255 1260
Asn Val Pro Val Glu Glu Glu Glu Glu Leu Gln Ser Gln Gln Leu Leu
1265 1270 1275 1280
Pro Gln Gln Leu Pro Glu Cys Lys Val Asp Ser Glu Thr Asn Ile Glu
1285 1290 1295
Ala Ser Lys Leu Pro Thr Ser Glu Pro Glu Ala Asp Ala Glu Ile Glu
1300 1305 1310
Leu Lys Glu Ser Asn Gly Thr Lys Leu Glu Glu Pro Ile Asn Glu Glu
1315 1320 1325
Thr Pro Ser Gln Asp Glu Glu Glu Gly Val Ser Asp Val Glu Ser Glu
1330 1335 1340
Arg Ser Gln Glu Gln Pro Asp Lys Thr Val Asp Ile Ser Asp Leu Ala
1345 1350 1355 1360
Thr Lys Leu Leu Asp Ser Trp Lys Asp Leu Lys Glu Val Tyr Arg Ile
1365 1370 1375
Pro Lys Lys Ser Gln Thr Glu Lys Glu Asn Thr Thr Thr Glu Arg Gly
1380 1385 1390
Arg Asp Ala Val Gly Phe Arg Asp Gln Thr Pro Ala Pro Lys Thr Pro
1395 1400 1405
Asn Arg Ser Arg Glu Arg Asp Pro Asp Lys Gln Thr Gln Asn Lys Glu
1410 1415 1420
Lys Arg Lys Arg Arg Ser Ser Leu Ser Pro Pro Ser Ser Ala Tyr Glu
1425 1430 1435 1440
Arg Gly Thr Lys Arg Pro Asp Asp Arg Tyr Asp Thr Pro Thr Ser Lys
1445 1450 1455
Lys Lys Val Arg Ile Lys Asp Arg Asn Lys Leu Ser Thr Glu Glu Arg
1460 1465 1470
Arg Lys Leu Phe Glu Gln Glu Val Ala Gln Arg Glu Ala Gln Lys Gln
1475 1480 1485
Gln Gln Gln Met Gln Asn Leu Gly Met Thr Ser Pro Leu Pro Tyr Asp
1490 1495 1500
Ser Leu Gly Tyr Asn Ala Pro His His Pro Phe Ala Gly Tyr Pro Pro
1505 1510 1515 1520
Gly Tyr Pro Met Gln Ala Tyr Val Asp Pro Ser Asn Pro Asn Ala Gly
1525 1530 1535
Lys Val Leu Leu Pro Thr Pro Ser Met Asp Pro Val Cys Ser Pro Ala
1540 1545 1550
Pro Tyr Asp His Ala Gln Pro Leu Val Gly His Ser Thr Glu Pro Leu
1555 1560 1565
Ser Ala Pro Pro Pro Val Pro Val Val Pro His Val Ala Ala Pro Val
1570 1575 1580
Glu Val Ser Ser Ser Gln Tyr Val Ala Gln Ser Asp Gly Val Val His
1585 1590 1595 1600
Gln Asp Ser Ser Val Ala Val Leu Pro Val Pro Ala Pro Gly Pro Val
1605 1610 1615
Gln Gly Gln Asn Tyr Ser Val Trp Asp Ser Asn Gln Gln Ser Val Ser
1620 1625 1630
Val Gln Gln Gln Tyr Ser Pro Ala Gln Ser Gln Ala Thr Ile Tyr Tyr
1635 1640 1645
Gln Gly Gln Thr Cys Pro Thr Val Tyr Gly Val Thr Ser Pro Tyr Ser
1650 1655 1660

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Gln Thr Thr Pro Pro Ile Val Gln Ser Tyr Ala Gln Pro Ser Leu Gln
1665                1670                1675                1680
Tyr Ile Gln Gly Gln Gln Ile Phe Thr Ala His Pro Gln Gly Val Val
                1685                1690                1695
Val Gln Pro Ala Ala Ala Val Thr Thr Ile Val Ala Pro Gly Gln Pro
            1700                1705                1710
Gln Pro Leu Gln Pro Ser Glu Met Val Val Thr Asn Asn Leu Leu Asp
        1715                1720                1725
Leu Pro Pro Pro Ser Pro Pro Lys Pro Lys Thr Ile Val Leu Pro Pro
    1730                1735                1740
Asn Trp Lys Thr Ala Arg Asp Pro Glu Gly Lys Ile Tyr Tyr Tyr His
1745                1750                1755                1760
Val Ile Thr Arg Gln Thr Gln Trp Asp Pro Pro Thr Trp Glu Ser Pro
                1765                1770                1775
Gly Asp Asp Ala Ser Leu Glu His Glu Ala Glu Met Asp Leu Gly Thr
            1780                1785                1790
Pro Thr Tyr Asp Glu Asn Pro Met Lys Ala Ser Lys Lys Pro Lys Thr
        1795                1800                1805
Ala Glu Ala Asp Thr Ser Ser Glu Leu Ala Lys Lys Ser Lys Glu Val
    1810                1815                1820
Phe Arg Lys Glu Met Ser Gln Phe Ile Val Gln Cys Leu Asn Pro Tyr
1825                1830                1835                1840
Arg Lys Pro Asp Cys Lys Val Gly Arg Ile Thr Thr Thr Glu Asp Phe
                1845                1850                1855
Lys His Leu Ala Arg Lys Leu Thr His Gly Val Met Asn Lys Glu Leu
            1860                1865                1870
Lys Tyr Cys Lys Asn Pro Glu Asp Leu Glu Cys Asn Glu Asn Val Lys
        1875                1880                1885
His Lys Thr Lys Glu Tyr Ile Lys Lys Tyr Met Gln Lys Phe Gly Ala
    1890                1895                1900
Val Tyr Lys Pro Lys Glu Asp Thr Glu Leu Glu
1905                1910                1915
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